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EXAMINER
SINGH, RAMNANDAN P

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>04 December 2003</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-23</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-5,7-12,14-21 and 23</u> is/are rejected.

7) ☒ Claim(s) <u>6,13 and 22</u> is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>04 December 2003</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____.

        3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date <u>(i) Jul 16, 2004 , (ii) May 19, 2005</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the

basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1, 7, 10, 15-16, 19 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Jones et al [US 6,697,768 B2] in view of Iga [US

5,065,241].

Regarding claim 1, Jones et al teach an anomaly detection system

shown in Figs. 10, 11,19, comprising:

an echo canceller (908) having a plurality of taps respectively

associated with a plurality of tap coefficients [Figs. 10-11]; and

anomaly detection logic (or calibration) [Fig. 19; col. 3, line 45 to col.

4, line 18; col. 24, line 32 to col. 25, line 25].

Although Jones et al teach using a sequence of filter coefficients (I.e.

taps) at step 1930 of the echo canceller as a bench mark to detect

anomalies using a difference in peaks locations based on delays [Fig. 10,

steps 1922 thru 1940; col. 3, lines 45-53], they do not teach expressly

using a difference in two sets of filter coefficients to detect anomalies.

Iga teaches a configuration to determine a difference between a new

tap coefficient associated with one of the taps and a previous tap

coefficient associated with the one tap, the anomaly detection logic

configured to perform a comparison between the difference and a threshold

and to detect an anomaly along a telecommunication line based on the

comparison [Figs. 1-6; col. 5, line 10 to col. 7, line 65].

At the time of the invention, it would have been obvious to a person

of ordinary skill in the art to combine the teachings of Iga with Jones et al

in order to provide an alternate approach to detect anomalies using the

two sets of echo canceller filter coefficients.

Claims 7, 10, 15-16 and 19 are essentially similar to claim 1 and are

rejected for the reasons stated above.

3.   Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable
over the combination of Jones et al and Iga as applied to claim 1 above,
and further in view of Galand et al [US 4,764,955].

Regarding claim 2, the combination of Jones et al and Iga does not
teach expressly generating a histogram of anomaly indications (i.e.
abnormal delays).

Galand et al teach generating a histogram of anomaly indications (i.e.
flat delays) [Figs. 3-5; col. 4, line59 to col. 5, line 40].

At the time of the invention, it would have been obvious to a person
of ordinary skill in the art · to combine the teachings of Galand et al with Iga
and Jones et al in order to derive an accurate anomaly estimation using a
histogram of anomaly indications based on comparisons of associated tap
coefficients [Galand et al; col. 5, lines 34-40; Abstract].

Claims 14 and 23 are essentially similar to claim 2 and are rejected
for the reasons stated above.

Regarding claim 3, the combination of Jones et al and Iga teaches

the system, wherein the anomaly detection logic is configured to maintain a

running sum of a total number of anomaly indications detected by the

anomaly detection logic [Jones et al; col. 25, lines 1-8] based on

comparisons between tap coefficients associated with the one tap [Iga; col.

7, lines 1-65].

Claims 8 and 17 are essentially similar to claim 3 and are rejected for

the reasons stated above.

Regarding claim 4, the combination of Jones et al, Iga and Galada et

al teaches the system, wherein the anomaly detection logic is configured to

compare the running sum (i.e. updating the histogram) to a threshold [Iga;

col. 7, lines 1-65].

Claims 9 and 18 are essentially similar to claim 4 and are rejected for

the reasons stated above.

Regarding claim 5, the combination of Jones et al, Iga and Galand et al teaches the system, wherein the anomaly detection logic is configured to perform a second comparison between a threshold and a value indicative of an error rate (i.e. changes in error signals) associated with the telecommunication line [Iga; col. 7, lines 44-64; col. 4, lines 18-53], the anomaly detection logic further configured to detect the anomaly based on the second comparison (not shown) [Iga; claims 9-11].

Claims 12 and 21 are essentially similar to claim 5 and are rejected for the reasons stated above.

Regarding claim 11, Galand et al further teach the system wherein the anomaly detection logic is configured to periodically update the baseline tap coefficients [col. 3, lines 51-57].

Claim 20 is essentially similar to claim 11 and is rejected for the reasons stated above.

Allowable Subject Matter

4.   Claims 6, 13 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claim 6 recites the limitation " wherein the value represents a minimum signal-to-noise ratio detected during a particular time period prior to the second comparison". The prior art of record does not teach this limitation.

Claim 13 recites the limitation "wherein the anomaly detection logic is configured to update at least one of the baseline tap coefficients in response to one of the comparisons". The prior art of record does not teach this limitation.

Claim 22 recites the limitation "comprising the step of updating at least one of the baseline tap coefficients in response to a comparison between one of the differences and one of the thresholds". The prior art of record does not teach this limitation.

Conclusion

5.   The prior art made of record and not relied upon is considered

pertinent to applicant's disclosure.

Caceres et al [US 6,167,133] teach a method for detecting, tracking,

canceling echoes using histograms [Whole document].

Any inquiry concerning this communication or earlier communications

from the examiner should be directed to Ramnandan Singh whose

telephone number is (571) 272-7529. The examiner can normally be

reached on M-TH (8:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Fan Tsang can be reached on (571) 272-7547. The

fax phone number for the organization where this application or proceeding

is assigned is 571-273-8300.

Information regarding the status of an application may be obtained

from the Patent Application Information Retrieval (PAIR) system. Status

information for published applications may be obtained from either Private

PAIR or Public PAIR. Status information for unpublished applications is

available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on

access to the Private PAIR system, contact the Electronic Business Center

(EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-

1000.

Ramnandan Singh
Examiner
Art Unit 2614